

SHTRIKER, V. (Leningrad)

Investigator's persistence. Pozh.delo 6:9-10 Mr '60.

(MIRA 13:6)

(Fires)

MORACHEVSKIY, Yu.V.; SHTRIKHMAN, R.A.

Certain data on the chemistry of colored glass prepared by
M.V. Lomonosov. Zhur.prikl.khim. 29 no.9:1432-1435 S '56.

(MLRA 9:11)

(Glass manufacture--Chemistry)

SHTRIKHMAN R.A.

48-5-23/56

SUBJECT: USSR/Luminescence

AUTHORS: Markovskiy L.Ya. and Shtrikhsan R.A.

TITLE: Investigation of Luminescent Properties of Some Boron-Phosphate Compounds (Issledovaniye lyuminescentnykh svoystv nekotorykh borofosfatnykh soedineniy)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1957, Vol 21, #5, pp 683-685 (USSR)

ABSTRACT: Luminescent properties of boron phosphate and its salts were investigated. The activation of BPO_4 by manganese, titanium, cerium and neodymium did not yield positive results. In the activation by tellurium it was found that the optimum concentration of tellurium was 3.5 % and optimum calcination temperature was 700°C . Under these conditions a luminophore with maximum emission at $410 \text{ m}\mu$ was obtained.

A special effect of adding B_2O_3 in changing luminescent properties of phosphates was detected. It was found that cadmium pyrophosphate activated by manganese and boron can be of practical importance. Another luminophore

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48-5-23/56

TITLE: Investigation of Luminescent Properties of Some Boron-Phosphate Compounds (Issledovaniye lyuminescentnykh svoystv nekotorykh borofosfatnykh soyedineniy)

of possible importance can be a new phase of cadmium phosphate obtained by sintering initial substances at 750°C. It exceeds industrial grades of phosphates L-34 and L-35 in luminosity and has a more intensive emission in the red region of spectrum.

The report was followed by a discussion.

One Russian reference is cited.

INSTITUTION: State Institute of Applied Chemistry.

PRESENTED BY:

SUBMITTED: No date indicated

AVAILABLE: At the Library of Congress.

Card 2/2

SHTRIKHMAN, R. A.

Micromethod for the determination of the fusion temperatures of highly refractory materials. L. Ya. Markovskii, N. V. Velichina, and R. A. Shtrikhman. *Ogneupory* 22, 42-5 (1957).—A fragment of the sample, not larger than 2-3 mm. in diam., is fixed on a graphite block heated in a graphite-tube (low-voltage) furnace. The temp. of the sample is measured by an optical micropyrometer (Sientens) by observing the heating process through an opening in the graphite tube. If the sample would react with the graphite support, it can be heated on a thin Mo sheet. The interior of the furnace is constantly purged by a slow current of purified A gas; the rate of heating near the fusion temp. is 50-100°/min. The fusion of the sample is observed by the rounding of the angular fragment to a bead. The app. is checked by the fusion points of Cu, Ni, Pt, SiO₂, Al₂O₃, and ZrO₂. The fusion points of Cr₂C₃ (1850°), Ca boride (2230°), and CrB₂ (2280°) were detd. with an accuracy of ±20°. Kieffer and Schwarzkopf (*Hartloffs und Hartmalle*, 1953, 717pp. (C.A. 48, 9892c)) gave for CrB₂ 1850°. The compn. of the CrB₂ before and after the fusion was, therefore, carefully examd. by analytical controls and x-ray spectrometry; no changes were detected, although the CrB₂ melt, perhaps, dissolves some graphite. The fusion app. described is not suitable for the detn. of the f.p. of Be or of Be borides because they react seriously with graphite.

W. Eitel

gaf

SAMSONOV, Grigoriy Valentinovich, prof., doktor tekhn.nauk; MARKOVSKIY, Lev Yakovlevich, kand.khim.nauk; ZHIGACH, Aleksey Pomic, doktor khim.nauk; VALYASHKO, Mikhail Georgiyevich, doktor khim.nauk. Prinsipal uchastiye SHTRIKHMAN, R.A. FRANTSEVICH, I.N., otv.red.; POKROVSKAYA, Z.S., red.isd-va; SKLYAROVA, V.Ye., tekhn.red.

[Boron, its compounds and alloys] Bor, ego soedineniia i splavy. Pod obshchei red. G.V.Samsonova. Kiev, Izd-vo Akad.nauk USSR, 1960. 589 p. (MIRA 14:3)

1. Chlen-korrespondent AN USSR (for Frantsevich).
(BORON)

27340
S/080/61/034/009/002/016
D204/D305

~~SECRET~~
AUTHORS: Shtrikhman, R.A., Shoykhet, D.N., and Markovskiy, L.Ya.

TITLE: On the primary and secondary processes occurring during the synthesis of zinc-strontium-phosphate phosphor in reducing atmosphere

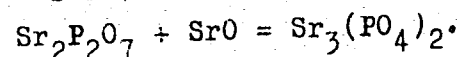
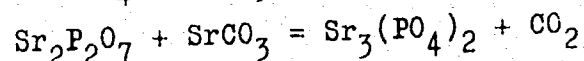
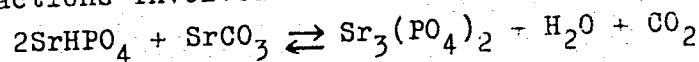
PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 9, 1961,
1912 - 1920

TEXT: This paper reports studies on the primary reaction involved in the formation of the mixed Zn and Sr orthophosphate base and those reactions which are involved in the specific effect of the reducing atmosphere on the phosphor composition. The base composition studied was $Zn_{0.44} Sr_{2.56} (PO_4)_2$. Separate components of the charge were roasted in air and consisted of: $SrHPO_4$, $SrCO_3$, $Zn_3(PO_4)_2 \cdot 2H_2O$. Differential thermal analysis was carried out with a Cr-alumel thermocouple and a multi-point potentiometer type EPP-Card 1/3

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On the primary and secondary ...

09. The reactions involved are:



In the 3-component mixture, dehydration of the Zn phosphate also occurs. The reducing atmosphere used is a mixture of H_2 and N_2 .

Heating in H_2 flow alone causes the product to become blackened and lose luminosity. If subsequently roasted in a neutral gas atmosphere at 1100°C , the white color of the product is restored. X-ray analysis of products showed that the product obtained by heating in H_2 (3 - 5 hours) is $\text{Sr}_3(\text{PO}_4)_2$ with Zn metal impurity, with $\text{Zn}_3(\text{PO}_4)_2$. Sr phosphate forms at a temperature of 900°C , whereas introduction of Zn into the lattice takes place at a higher temperature.

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On the primary and secondary ...

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rature and over a longer period of time. The reducing atmosphere may be $H_2 + N_2$ or may be an alternating flow of $H_2 + N_2$ and of N_2 .

The condensate formed during the heating mainly consists of Zn with small amounts of P and Zn_3P_2 . There are 3 tables, 3 figures, and 21 references: 3 Soviet-bloc and 18 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: R.C. Ropp, R.W. Mooney, J. Electroch. Soc., 107, 15, 1960; R.C. Ropp, M.A. Aia, Anal. Chem., 31, 103, 1959; W.L. Wanmaker, B. Bakker, J. Electroch. Soc., 106, 1027, 1959; K.H. Butler, U.S. Patent 2,898,302, 1959.

ASSOCIATION: Gosudarstvennyy institut prikladnoy khimii (State Institute of Applied Chemistry)

SUBMITTED: November 24, 1960

Card 3/3

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als 1573

S/135/61/000/005/002/011
A/006/A101

AUTHORS: Petrov, A. V., Candidate of Technical Sciences, Shtrikman, M. M.,
Engineer

TITLE: Investigating the parameters of a shielding gas jet in arc welding

PERIODICAL: Svarshchnoye proizvodstvo, no. 5, 1961, 5 - 8

TEXT: The authors studied the dependence of the shielding properties of a gas jet on the shape and diameter of the torch nozzle, the distance between the nozzle and the work piece, the consumption of the shielding gas, and some other factors. The experiments were made with a shielded plane surface located perpendicularly to the nozzle axis during welding in argon with tungsten electrode without filler metal in lower position. The outflow of the shielding gas from the nozzle of a welding torch can be represented in the form of a symmetrically active gas jet flowing into a passive immovable medium. For this case the physical model of jet mixing shown in Fig. 1 can be employed. Optimum shielding properties of a gas jet can be experimentally determined. To evaluate the efficiency of the gas shield the method of cathodic spraying was employed: a copper and a steel plate, electrically insulated from each other were placed on the welding

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table and an a-c arc was alternatingly excited at the edge of each plate (80 amp current; 8 - 10 v arc voltage; 5 sec time of arc burning). During burning of the arc in the zones adjacent to the welding pool, a zone of cathodic spraying appeared in the form of a bright spot, concentrically arranged in respect to the fusion point. The process is illustrated in figure 2 which shows that when the cathode surface is subjected to the impact of positive argon ions, metal particles are ejected from the cathode plate in random directions. As a result, iron is revealed on the copper plate and copper on the steel plate. The metal in the zone of cathodic spraying oxidizes if the argon contains air. The efficiency of the argon shield is evaluated from the non-oxidized zone of cathodic spraying. Experiments to determine the shielding properties of the gas jet were made with excitation of a stable arc on 2 mm thick CH 3 (SM3) stainless steel plates. The welding head was fixed in stationary position, the a-c arc was excited with the aid of an oscillator. The time of arc burning was fixed with the aid of a time relay. The authors determined the dependence of the shielding properties of the gas jet on the design of the torch nozzle, the state of the nozzle edges, the gas feed conditions, argon consumption, the distance between the nozzle and the work piece, and the nozzle diameter. A series of nozzles with and without internal deflectors were manufactured and tested (Fig. 6 and 8). Results obtained lead to the following conclusions: 1. When using torches with nozzles of up to

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Investigating the parameters of a

20 - 25 mm diameter, the non-oxidized zone of cathodic spraying on the surface of the welded work piece is in the majority of cases characteristic of the argon-jet shielding properties. Measurements of the non-oxidized zone of the cathode spraying when exciting an a-c arc with tungsten electrode can be taken as a basis for determining efficient parameters of the shielding gas jet. 2. The basic requirements to the design of a torch nozzle for arc welding in shielding gas, assuring optimum shielding effects, are as follows: a) the nozzle should be terminated by a cylindrical part whose length must not be below the diameter of the outlet aperture; b) the diameter of the nozzle outlet aperture when welding with tungsten electrodes, must be 12 - 18 mm under welding conditions generally used. Large diameter nozzles (14 - 20 mm) should be used for welding with consumable electrode due to the intensified disturbance of the jet by the arc. Torches of manual argon-arc welding of thin sheet materials should be supplied with about 8 mm diameter nozzles. c) inside the nozzle the formation of separate jets with high outlet speed should be absolutely prevented; for this purpose the insertion of deflectors is recommended or the arrangement of the channels perpendicularly to the nozzle wall; d) the internal nozzle edge should be unrounded and clean, without metal splashings; 3. At the given nozzle diameter, increased gas consumption raises the shielding properties of the jet only up to a certain limit;

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Beyond this limit a further increase of gas consumption impairs the shielding properties. For 8 - 20 mm diameter nozzles, best shielding properties of the jet are observed at 15 l/min argon consumption. Higher current intensity raises the disturbing effect of the arc on the gas jet. Therefore, it is imperative to increase the nozzle diameter and gas consumption at higher current intensities. For 8 - 18 mm diameter nozzles, the distance from the work piece should not exceed 15 - 18 mm. At 25 mm distance even better shielding properties of the gas jet are ineffective at any gas consumption. There are 10 figures and 5 references, 3 Soviet and 2 Non-Soviet.

Figure 1:

Schematic drawing of free argon flow from the nozzle a - shielding gas (argon); b-nozzle; c-pure argon zone; d-circumferential zone of argon and air mixing; e-air

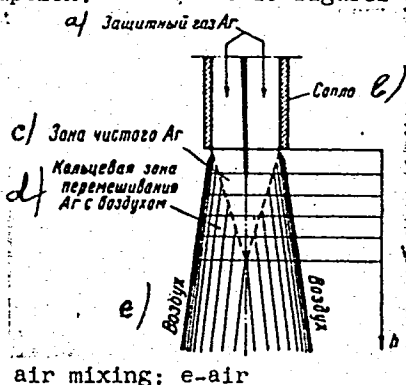
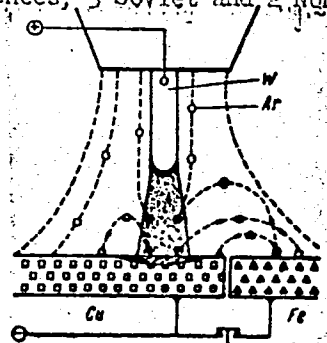


Figure 2:

Schematic representation of the cathodic spraying process



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A006/A106

12300 also 1573

AUTHORS: Petrov, A. V., Candidate of Technical Sciences, Shtrikman, M. M.,
Engineer

TITLE: The effect of rolling welded joints on the properties of welds of
heat-resistant CH(SN) type steels

PERIODICAL: Svarochnoye proizvodstvo, no. 7, 1961, 10-13

TEXT: The authors investigated the possibility of raising the strength of
weld joints of austenite-martensite stainless steels by rolling with subsequent
aging at 480°C. Grade CH2 (SN2) and CH3 (SN3) steel specimens ($\delta = 1$ mm) were
joined by automatic argon arc welding without and with filler wire under the
following conditions: without filler metal: $I = 70$ amps; $U = 9$ v; $v = 15$ m/h;
with 1 mm-diameter filler wire $I = 90$ amps; $U = 12$ v; $v = 35$ m/h. Cold working
of the welds was performed by rolling on a cantilever machine. A system of
compressing the weld is shown in Fig. 1. The deformation of welds was approxi-
mately evaluated from their thinning. Rolling was performed after full cooling-
off of the welded specimens. The effect of fastening the specimens, and of the
rolling force on the degree of deformation was studied on devices designed by

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A006/A106

The effect of rolling welded ...

S. A. Kurkin and others at MVTU im. Bauman. The specimen was fastened either on a backing plate or in a frame (Fig. 2). The possibility of strengthening weld joints by ultrasonic treatment was also investigated, using 0.6 mm thick SN2 steel specimens and a 10 kw ultrasonic generator at 20 cycles frequency. As a result of the tests performed the following conclusions are drawn: The strength of weld joints of the investigated steels is below that of the base metal due to their austenitic structure. The welds can be strengthened by cold working with steel rolls and subsequent aging at 480°C. During cold working the dendritic structure of the weld is destroyed and a martensite phase is formed, which is subjected to dispersion hardening at 400-500°C. The degree of strengthening of the weld (i.e. the efficiency of rolling) is raised with rolling force increasing up to 3,000-4,000 kg. Its further rise entails greater warping of the specimen without noticeable increase of the weld strength. The number of passes and the system of rolling the weld have only a slight effect on its mechanical properties. The method of fastening the specimen affects the strength of the weld. Highest strength is shown by specimens rolled in a frame (Fig. 2). Rolling and aging considerably raise the mechanical properties of the weld joint at higher test temperatures (by a factor of 1.5 at 400°C). Ultrasonic treatment of the weld produces surface strengthening of the metal without raising the strength of the weld joint.

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24777

S/125/61/000/008/003/014

DO40/D113

1-2300

AUTHORS:

Petrov, A.V. and Shtrikman, M.M. (Moscow)

TITLE:

The properties of welded joints in SN thin sheet steels

PERIODICAL:

Avtomaticeskaya svarka, no. 8, 1961, 25-30

TEXT: Information is presented on the properties of welds produced by the argon arc method from CH (SN) steel, and a heat treatment system ensuring uniform strength of the welded joints. The heat-resistant SN steel of the austenite-martensite class is widely employed in the machine-building industry. The composition of three "SN" grades is given (Table 1):

Percentage chemical composition

Steel	C	Cr	Ni	Al	Mo	Mn	Si	S	P
SN2	0.05-0.09	14.0-15.7	7.0-9.4	0.7-1.3	-	-	-	-	-
SN3	0.06-0.10	16.0-17.5	4.5-5.5	-	3.0-3.5	0.7	0.7	0.02	0.035
SN4	0.05-0.10	14.2-15.8	7.0-8.5	1.2-1.8	1.6-2.4	-	-	-	-

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The properties of welded joints...

This steel has an austenitic structure after normalization at 1050°C. Additional normalization at 950-975°C causes austenite to become unstable. Cold treatment at -70°C or cold hardening easily transforms austenite into martensite. The presence of Al and Mo causes the formation of a third phase (according to data developed by Ya.M. Potak, V.V. Sachkov and L.S. Popova) in aging at 400-500°C. In strengthened state, the resistance and plasticity modulus of SN at elevated temperatures is 1.5-2 times higher than of any other steel or alloys containing aluminum and titanium. Careful shielding is necessary in welding to protect the metal from oxidation. Heat treated metal near the welds consists of austenite, martensite and separated carbides, and its maximum strength is reduced to 85-95 kg/mm²; the weld metal like the base metal also has lowered strength and acquires a coarse-dendritic austenite structure, while the base metal retains its original martensite-austenite structure with a clearly expressed rolled texture. It was experimentally impossible to raise the strength of joints by welding with stronger current and correspondingly higher speed. Rolling of welds with subsequent aging at 480°C raised the strength of the joints to 120-130 kg/mm². It was

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The properties of welded joints...

proved that the joints could be greatly strengthened by normalization at 950-975°C with subsequent cold treatment for 2 hours at -70°C and aging for 1 hour at 450-480°C. Cold treatment and aging alone was practically ineffective. Full treatment (normalization, cold treatment and aging) was particularly effective in strengthening SN4 steel, but did not markedly increase the vibration strength. The resistance of welds to general corrosion was high; however, intercrystalline corrosion developed in heat-treated metal at the welds in the area where the carbides were more separated. Heating to about 900°C caused increased formation of carbides and the highest intercrystalline corrosion. The SN3 steel was the grade most prone to intercrystalline corrosion, particularly after normalization and cold treatment prior to welding. Full thermal treatment after welding fully eliminated this concentrated corrosion; by increasing the aging temperature to 500-550°C, the carbides were separated in the weld metal where intercrystalline corrosion was observed. The following conclusions were drawn: (1) Welded joints of SN steel have a maximum strength of 85-100 kg/mm² and a yield limit of 35-60 kg/mm² after welding, regardless of the state of welded elements prior to welding. (2) Full heat treatment (normalization, cold treatment and aging) may raise the maximum strength and yield point of welded joints

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The properties of welded joints...

to about the strength and yield limit of the base metal at room temperatures and above. (3) Welding does not reduce the general corrosion resistance of SN steel, but welded joints made of this steel are prone to intercrystalline corrosion in the zone of increased carbide formation. Full heat treatment raises the intercrystalline corrosion resistance if the aging temperature does not exceed 500°C. Welds in SN3 steel have the highest corrosion resistance. [Abstracter's note: Essentially complete translation] . There are 6 figures, 4 tables and 1 Soviet reference.

SUBMITTED: September 2, 1960

Card 4/4

L 51451-65 EWT(d)/EWT(m)/EWP(c)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/
EWP(z)/EWP(b)/EWP(l)/EWA(c) P2-4 MJW/JD/HM

ACCESSION NR: AP5009671

UR;0135/65/000/004/0015/0018

621.791.89:669.15-194

31
B

AUTHOR: Petrov, A. V. (Candidate of technical sciences); Slavin, G. A. (Candidate of technical sciences); Shtrikman, M. M. (Candidate of technical sciences)

TITLE: Automatic consumable-electrode welding in the vertical plane

SOURCE: Svarochnoye proizvodstvo, no. 4, 1965, 15-18

TOPIC TAGS: consumable electrode welding, automatic welding, vertical weld technology, gas shield, transverse electrode vibration / ASVP-1 welder, ASGP-1 welder, VNS-5 steel, SN3 electrode

ABSTRACT: The ASVP-1 and ASGP-1 automatic welders were used to study the optimal conditions for automatic consumable-electrode welding of vertical or horizontal joints on vertical surfaces of VNS-5 steel in an atmosphere of inert gas (sample thickness 8 -10mm, seam joint). SN3 welding wire with $\phi = 1.2 - 1.6$ mm, a downward pass direction, an arc length not exceeding 2 mm and a gas shield of Ar + 10% CO₂ provided the best primary layers in vertical welds. Metal of the molten pool should not advance the arc. Optimal amplitudes and frequencies of transverse vibrations of the welding wire, insuring the minimal number of passes needed to complete the second and subsequent layers, are given. The authors also

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ACCESSION NR: AP5009671

comment briefly on horizontal welds. Orig. art. has: 2 tables and 8 figures. 0

ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: IR, MM

NO REF SOV: 003

OTHER: 000

ml
Card 2/2

L 22976-66 EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k) IJP(c) JD/HM/HW
ACC NR: AP6011537 SOURCE CODE: UR/0135/66/000/004/0026/0027

AUTHOR: Shtrikman, M. M.; Petrov, A. V.

ORG: none

TITLE: Improving the properties of welded VNS2 steel joints by planishing

SOURCE: Svarochnoye proizvodstvo, no. 4, 1966, 26-27

TOPIC TAGS: precipitation hardenable steel, martensitic steel, stainless steel, steel weld, weld planishing/VNS2 steel, SN3 steel

ABSTRACT: The effect of planishing on the properties of welded VNS2 and SN3 steel joints has been investigated. Specimens 1 mm thick were TIG welded without filler metal. During planishing, SN3 steel welds were found to be under tension and the weld-adjacent zones, under compression. The welds of VNS2 steel, unlike the majority of steels, are under compression and the weld-adjacent zones are under tension stresses. VNS2 steel undergoes the martensitic transformation with a volume increase in the temperature range 250—350C. The absolute values of residual stresses in the case of VNS2 steel were found to be 35—50% lower than those of SN3 steel. The planishing was done in one pass with rollers 80 mm in diameter. Planishing with a pressure of 1500—2000 kg almost completely eliminated the internal stresses and distortion. No structural changes were observed in planished metal. Planishing with a pressure of 1000—3000 kg increases somewhat the tensile strength of VNS2 steel joints. Subsequent

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ACC NR: AP6011537

aging brings about a further increase of 15—20 kg, to about 140 kg/mm². The bend angle was not affected by planishing and remained unchanged at 80—100C. The fatigue strength increased from 27 for unplanished welds to 39 kg/mm² for planished welds. The strength of VNS2 welds increased with increasing planishing pressure up to 3000—4000 kg. Further increase of pressure had no effect. For the reduction of distortion in SN3 steel joints, planishing pressure must be applied to welds, and in VNS2 steel, to the heat-affected zones. Orig. art. has: 5 figures. [WW]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002/ ATD PRESS: 4/238

Card 2/2 2C

L 27200-66 EWP(k)/EWT(m)/T/EWA(d)/EWP(v)/EWP(t)/ETI IJP(g) JD/HM/WB/JT
 ACC NR: AP6015239 (N) SOURCE CODE: UR/0125/66/000/005/0006/0007

AUTHOR: Shtrikman, M. M.

ORG: NIAT

TITLE: Effect of refrigeration on the structure and properties of VNS5 steel
welded joints

SOURCE: Avtomaticheskaya svarka, no. 5, 1966, 6-7

TOPIC TAGS: steel, precipitation hardenable steel, austenitic martensitic steel,
 steel welding, steel weld, weld heat treatment, weld refrigeration, weld property/
 VNS5 steel, 1Kh15NSM2 steel

ABSTRACT: The effect of refrigeration on the properties of welded joints in
 precipitation-hardenable austenitic-martensitic VNS5 (1Kh15NSM2) steel has been
 investigated in a search for an effective method of heat treatment for welded sheet
 parts which cannot be subjected to full heat treatment including annealing at 1050 C.
 Heat-treated steel specimens 3 mm thick were TIG welded, refrigerated (without
 annealing) at -70C, -55C or -40C for 2-240 min, and tempered at 450 C for 1 hr. It
 was found that the weld and weld-adjacent zones refrigerated at -70 C for 2 hr con-
 tain a considerable amount of residual austenitic (up to 25%). Refrigeration at
 -55 C produces almost the same result as that at -70 C, with the martensite content
 lower by only 10-15%. Subsequent tempering at 450 C for 1 hr substantially in-
 creases the hardness and strength of weld metal and stabilizes its structure, though

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UDC: 621.791.053:621.784.8

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ACC NR: AP6015239

the tensile strength remains lower than that obtained by full heat treatment, in which case it is at least 120 kg/mm². The notch toughness of weld and weld-zone metal in as-welded condition is about 12 kg/cm²; full heat treatment lowers it to about 5 kg/cm². The notch toughness of specimens refrigerated at -55 C for 20 min and tempered at 450 C for 1 hr was found to be 7 kg/cm². Refrigeration, however, does not eliminate the carbide network in the heat-affected zone and, as a result, the metal is susceptible to intergranular corrosion. This can be reduced by welding with a low heat input. Orig. art. has: 2 figures. [ND]

SUB CODE: 13, 11/ SUBM DATE: 24Jan66/ ORIG REF: 001/ OTH REF: 001/ ATD PRESS: 4258

Card 2/2 CC

L 04554-57 ENT(m)/ENP(w)/ENF(v)/T/ENP(t)/ETI/ENP(x) LJP(c) JD/HM
ACC NR: AP6023436 SOURCE CODE: UR/0135/66/000/007/0010/0012

AUTHOR: Shtrikman, M. M. (Candidate of technical sciences)

ORG: none

TITLE: The effect of δ -ferrite on the impact strength of the weld metal in joints of austenite-martensite steels

SOURCE: Svarochnoye proizvodstvo, no. 7, 1966, 10-12

TOPIC TAGS: impact strength, weld evaluation, arc welding / SN2 steel, SN3 steel, SN4 steel, VNS5 steel

ABSTRACT: The causes of brittle fracture in the weld metal in the joints of SN2, SN3, SN4 and VNS5 austenite-martensite steels and the effect of δ -ferrite on impact strength are investigated. Mechanical tests of weld joints from these steels showed the impact strength of the weld metal and the welded joints to be high after welding. However, subsequent heat treatment (normalization from 950-1050°C, cold working at -70°C for 2 hr, aging at 400-500°C for 2 hr) caused a sharp drop in impact strength and produced brittle fracture, especially in the weld metal. Subsequent tests were made on SN2 steel strips 80 mm thick. As a filler metal for argon-arc welding of these strips, SN3 metal electrode ($d=1.6$ mm) was used. Micrographic and macrographic analysis showed an increase in grain size and a more oriented structure in the upper passes. Specimens for

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L 04584-7

ACC NR: AP6023436

mechanical tests were prepared from the first, second and third passes. Tests showed that the plasticity of the upper passes is less than that of lower passes. In the central part of weld metal of SN3 steel joints, the quantity of δ -ferrite was 1.35 times more than in the peripheral zone. The as-welded specimens had δ -ferrite in the austenitic base metal which exhibited high plasticity and impact strength. The post heated specimens had the δ -ferrite interlayer in a hard martensitic base. Thus the orientation of these interlayers determine the locations of brittle failure in the specimens. A variety of post heat treatments of welded specimens 13 mm thick from SN3 and SN2 did not improve the impact strength of the weld; neither did they provide close-grained, less δ -ferrite oriented phase. Aging at 450-500°C decreased the impact strength by 20-40% in comparison with aging temperatures 400 or 600°C. The highest impact strength was obtained for metal thicknesses up to 20 mm using austenite filler metal 08Kh20N10G6 on VNS5 and SN3 steels. VNS5 filler metal on VNS5 steel gave less δ -ferrite, however, depending on the orientation of the δ -ferrite grains, the impact strength values varied considerably. A new Kh14N8M2 filler metal which is designated as Sv-VNS5 to be used on VNS5 steels could completely eliminate the formation of δ -ferrite structure, thus providing high mechanical properties. Orig. art. has: 7 figures, 2 tables.

SUB CODE: 11,13/ SUBM DATE: none/ ORIG REF: 003

Card 2/2 LC

ACC NR: AP7001925

(N)

SOURCE CODE: UR/0125/66/000/012/0009/0012

AUTHOR: Shtrikman, M. M. (Moscow)

ORG: none

TITLE: Properties of welded joints in heat-resistant stainless steels

SOURCE: Avtomaticheskaya svarka, no. 12, 1966, 9-12

TOPIC TAGS: precipitation hardening, stainless steel, ~~stainless steel~~ metal welding, welded joint property/VNS2 stainless steel, UNS5 stainless steel, SN2 stainless steel SN3 stainless steel

ABSTRACT:

Welded joints in SN-2, SN-3, VNS-2 and VNS-5 precipitation-hardenable stainless steels contain a zone located within the heat-affected zone which is more susceptible to attack by various corrosive media and has a lower ductility than the rest of the weld. In bend tests, for instance, cracks form in this zone at an angle 20—30% lower than in other zones. In tensile tests at 300—500C, the failure occurred mostly in this zone. A number of methods were tested in an attempt to prevent the formation or at least to reduce

Card 1/2

UDC: 621.791.856:669.14.018.47

ACC NR: AP7001925

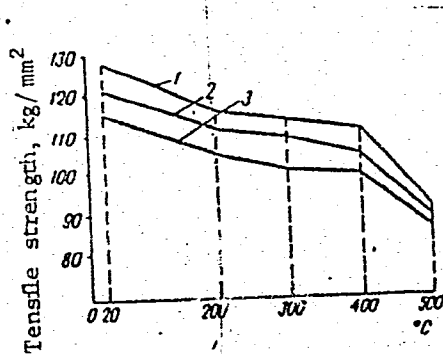


Fig. 1. Temperature dependence of the strength of VNS-2 steel sheets of thickness (1) and welds made by pulsed-power (2) or conventional power (3).

the width of the zone. It was found that increasing the titanium content in the VNS2 steel decreased the width of the zone by 1/3. Welding with copper backing instead of steel backing accelerated the heat dissipation and decreased the width of the zone by 30—50%. Annealing at temperatures over 950C eliminates the zone, but annealing is not always possible. Planishing was found to have no effect, and planishing combined with rolling had a strong negative effect. The use of argon with 10% H₂ or with 60% He, or helium alone and pulsed-power welding were found to be beneficial. With pulsed-power welding, the width of the entire heat-affected zone was reduced by 20—30% and the weld strength was increased by about 5 kg/mm², as compared to conventional power welding (see Fig. 1).

SUB CODE: 13/ SUBM DATE: 24Mar66/ ORIG REF: 005/ ATD PRESS: 5112

Card 2/2

S/136/61/000/012/003/006
E193/E383

AUTHORS: Zelenov, V.I. and Shtrineva, Z.M.

TITLE: Hydrometallurgical extraction of tellurium from tellurium-bearing products

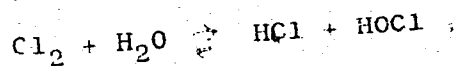
PERIODICAL: Tsvetnyye metally, no. 12, 1961, 59 - 61

TEXT: Work carried out recently at TsNIGRI has shown that tellurides (mainly $\text{Bi}_2\text{Te}_2\text{S}$), present in several gold-ore deposits, can be separated by flotation and that a concentrate containing 3 500 g/t Te can be obtained in this manner. A hydrometallurgical process of extracting Te from this concentrate is described in the present paper. The development work was carried out on a flotation concentrate obtained during large-scale tests of separation of Te from low-sulphide, gold-bearing ores. The concentrate consisted mainly of pyrite and arsenopyrite and contained 400 g/t Te. A calcium hypochlorite mixture, alkaline solutions and solutions of chlorides of several metals were tried as the leaching reagents.

Card 1/42

Hydrometallurgical extraction S/136/61/000/012/003/006
E193/E383

The best results were obtained by treating the concentrate with gaseous chlorine in an aqueous solution of sodium chloride. This treatment was carried out in apparatus illustrated schematically in Fig. 1, showing: 5 - chlorinator (organic-glass vessel); 4 - pump; 3 - chlorine cylinder; 2 - vessel with saturated sodium-chloride solution; 6 - V-shaped pressure gauge with a floating contact; 1 - electromagnet; glycerin was used as the sealing fluid in the chlorinator and in the pressure gauge. The chlorine was circulated in the closed circuit: cylinder - chlorinator - pump - cylinder. The following optimum conditions of the treatment were established: particle size of the concentrate - 80% of the 0.074 mm fraction; liquid; solid ratio in the pulp 4:1; duration of the chlorinating treatment 30 min; chlorine consumption 320 kg per 1 ton of concentrate. 85% recovery was attained under these conditions. Hypochlorous acid, which is formed according to:



Card 2/4

Hydrometallurgical extraction

S/136/61/000/012/003/006
E193/E383

is the main oxidising agent in the process described.
(Te (60 - 80 g/t) is present in the solution as telluric acid and possibly as a complex $\text{TeCl}_4 \cdot 2\text{NaCl}$. The beneficial effect of sodium chloride is illustrated in Fig. 2, where the quantity (mg) of tetradyomite leached out is plotted against the chlorination time (hours) in water (continuous curve) and in a 10% sodium-chloride solution (broken curve). Te in the leaching solution can be almost fully (97 - 98%) precipitated with sulphur dioxide (28 kg/t of solution). The precipitate obtained in this way constitutes a dark powder containing 53% Te and a small quantity of As, Bi, Cu, Sb and Pb. By incorporating the process described in the present paper in the treatment of low-sulphide Te- and gold-bearing ores (in the manner shown on a flow-sheet given in the paper) more than 60% Te present in these ores can be recovered. There are 3 figures and 4 Soviet-bloc references.

Card 3/4

RANNEV, G.G.; VYSOKOVSKIY, S.N.; MERKULOVA, R.M.; LOGVINOV, L.M.;
POTAPOV, V.P.; SHTRITS, V.V.

Using continuous operating dynamometers on strip mills.
Metallurg 10 no.6:25-27 Je '65. (MIRA 18:6)

1. Nauchno-issledovatel'skiy institut metallurgii i Ashinskiy
metallurgicheskiy zavod.

SHTRITER, V. A.

Blood Pressure in Different Professional Groups.

V. A. Shtriter. (Ter. Arkh.) 26, 50-55, March-April, 1954.

The author reports the results of an analysis of blood pressure readings of 25,937 factory workers (13,439 men and 12,498 women) which were recorded during the decade 1936-46. Only systolic pressures were considered for; as the author puts it, "changes in the diastolic level did not materially differ from those in the systolic pressure". The limits of normal systolic pressure were arbitrarily fixed at 100 to 140 mm. Hg.

Before the war high blood pressures were recorded in only 9% of male workers, while up to 17% were assessed as "hypotensive". During the war years the proportion of sufferers from high blood pressure rose sharply, reached its maximum in 1943, and thereafter declined, but even in 1946 it was 50% higher than in 1936. A rise in the incidence of hypertension was observed as early as 1940, that is during the war with Finland, when there was as yet no widespread malnutrition.

The incidence of hypertension was found to increase rapidly with age; thus, in 1943-4, 88.7% of individuals in the age groups above 50 were found to have hypertension, whereas for the age group 20-29 this figure was only 5.7% (ratio 15.6 to 1). The respective figures for 1946 were 53.1% and 3.1% (ratio 17.2 to 1). Men and women were found to be equally prone to develop high blood pressure. Hard physical labour and work associated with nervous tension were found to favour the development of hypertension.

Some tendency to hypotension was found among lead workers (5,428 cases), and also among those in contact with benzole derivatives. Industrial contact with

(Continued)

Blood Pressure in Different Professional Groups.

mercury, aromatic nitro-compounds, and carbon disulphide did not appear to affect the blood pressure.

A. Swan

SO: ABSTRACTS OF WORLD MEDICINE Vol. 16 No. 5

SHTROBEL', V.; ROMANKOV, P.G.; KONOVALOV, V.I.; LYUTAYA, N.S.

Study of mass transfer in a rotor-disk extractor. Zhur.prikl.khim.
37 no.1:50-58 Ja '64. (MIRA 17:2)

1. Leningradskiy tekhnologicheskii institut imeni Lensoвета.

SHTROBEL', V.; ROMANKOV, P.G.; KONOVALOV, V.I.; LYUTAYA, N.S.

Study of hydrodynamics without mass transfer and in the presence
of mass transfer in a rotor-disk extractor. Zhur. prikl. khim.
36 no.12:2672-2680 D'63. (MIRA 17:2)

1. Leningradskiy tekhnologicheskii institut imeni Lensoveta.

KONOVALOV, V.I.; SHTROBEL', V.O.; ROMANKOV, P.G.

Criterial equations of choking for countercurrent extraction columns. Zhur.prikl.khim. 34 no.9:1966-1971 S '61. (MIRA 14:9)

1. Kafedra protsessov i apparatov Leningradskogo tekhnologicheskogo instituta imeni Lensoвета.
(Extraction apparatus)

SHTROBINDER, M. F.

SHTROBINDER, M. F. and DRIABINA, M. M. "Experiment on the use of Conn-Cholodny's Method in the Microbiological Investigation of Vegetables and Fruits during Storage," Mikrobiologiya, vol, 4, no. 3, 1935, pp. 379-384. 448.3 M582

SO: SIRA SI - 90-53, 15 December 1953

Country : USSR
Category: Soil Science Organic Fertilizers

J

Abs Jour: RZhBiol , No 14, 1958, No 63120

Author : Shtrebinder, M.F.
Inst : Scientific-Research Institute of Agriculture of the
Krayniy North

Title : The Use of Bacterial Fertilizers in the Yamalo-
Nenetskiy National Okrug of Tyumenskaya Oblast'

Orig Pub: Byul nauchno-tekhn. inform. n.-i. sn-t s. Kh. Krayn
Severa, 1957, No 2, 43-44

Abstract: Experiments by the Salekhardskaya Experimental Station
carried on since 1946 showed the great effectiveness
of bacterial fertilizers - azotobacter and AMB - on
the tundra soils of the Yamalo-Nenetskiy national okrug.
The effectiveness of local bacterial fertilizers was

Card : 1/2

J-55

S/226/62/000/001/013/014
1003/1201

1.1600

Authors: Petrdlik, Miroslav and Shtrobl, Yaroslav.

Title: SINTERED STEEL ALLOYED WITH COPPER, NICKEL AND CARBON.

Periodical: Poroshkovaya metallurgiya, no. 1(7), 1962, 88-92

Text: The authors studied the effect of the addition of nickel, copper and carbon powders to steel powder on the properties of the resulting sintered alloy. The effect of various alloying elements is shown on a three-dimensional diagram representing the dependence of tensile strength and hardness of the sintered alloys on their content of alloying elements. The addition of nickel raises the strength of sintered steel, especially in the presence of copper. A metallographic investigation showed that the structure of these alloys consisted chiefly of ferritic grains. The addition of copper inhibits the grain growth of ferritic grains and promotes the growth of the iron-nickel phase. There are 2 diagrams, 3 micro-photographs and 1 table. Ref. includes no. 7 S. R. Crooks, Metal Progress, 74, 6, 68, 1958.

Association: Institut poroshkovoy metalurgii, Praga (Institute of Powder Metallurgy, Prague).

Submitted: August 20, 1961

Card 1/1

SHETROM, K.; KOROLEVA, S.

Devaluation of the French franc and Finnish mark. Den. 1 kred. 16
no.1:74-79 Ja '58. (MIRA 11:3)
(France--Money) (Finland--Money)

AL'TSHULER, A.; SHTROM, K.

New payment agreement with Italy. Den. 1 kred. 16 no.2:79-80 P '58
(Russia--Commerce--Italy) (MIRA 11:3)

SHROM, V.V., inzhener; GIMEL'FARB, S.P., inzhener.

Moulding machine for the production of rigid mineral wool slabs by the
intermittent method. Stroiki der mashinostroyeniya no. 7:18-21 J1 '56.
(Mineral wool) (Building materials) (MLRA 9:10)

BOGANOV, A.I.[deceased]; LEVCHENKO, P.V., kand. tekhn. nauk;
DOLGANOV, Ye.A., inzh.; SHTROM, V.V., inzh., retsenzent

[Rotary kilns in the cement industry] Vrashchaiushchiesia
pechi tsementnoi promyshlennosti. Moskva, Mashinostroenie,
1965. 318 p. (MIRA 18:2)

ZELICHENOK, Gavriil Grigor'yevich, kand.tekhn.nauk; SHTROM, V.V.,
inzh., retsenzent; TSIKERMANN, L.Ya., doktor tekhn. nauk,
red.; DUBASOV, A.A., red. izd-va; TIKHANOV, A.Ya., tekhn.
red.

[Means and layouts for the automation of transportation and
storage and technological processes at concrete plants] Sred-
stva i skhemy avtomatizatsii transportno-skladskikh i tekhn-
ologicheskikh protsessov na betonnykh zavodakh; spravochnoe po-
sobie. Moskva, Mashgiz, 1962. 457 p. (MIRA 15:7)
(Concrete plants) (Automation)

SHTROM, Vladimir Vladimirovich; SAPOZHNIKOV, M.Ya., kand. tekhn. nauk, retsenzent; LAPIR, F.A., inzh., red.; OTDEL'NOV, P.V., inzh., red. 1zd-va; GORDEYEVA, L.P., tekhn. red.

[Machinery and equipment for the production of thermal insulating building materials and elements] Mashiny i oborudovanie dlia proizvodstva teploizoliatsionnykh stroitel'nykh materialov i izdelii. Moskva, Mashgiz, 1962. 133 p. (MIRA 16:2)

(Insulation (Heat))

(Building materials industry--Equipment and supplies)

NETROM, V.V. : SAPOZHNIKOV, M.Ya., kand. tekhn. nauk, prof.,
Rtsenzent; KALISH, L.I., inzh., red.

[Equipment for the production of lightweight fillers] Oborudovanie dlia proizvodstva legkikh zapolnitelei. Moskva, Izd-vo "Mashinostroenie," 1964. 246 p. (MIRA 17:8)

KRYUKOV, D.K.; SHIROM, V.V., retsenzent

[Lining of ball mills] Futerovki sharovykh mel'nits. Moskva, Mashinostroenie, 1965. 183 p. (MIRA 18:7)

ARABEV, B.G. (Moskva); SHTRUM, Ye.N. (Moskva); LAPITSKIY, Yu.A. (Moskva)

Characteristics of the technology of making compact parts and the
mechanical properties of certain rare-earth metal hexaborides.

Porosh.met. 4 no.5365-70 3-0 '64.

(MIRA 18:10)

L 32223-65 EWP(e)/EWT(m)/EWP(w)/EPF(n)-2/EMA(d)/EPR/T/EWP(t)/EWP(b) Ps-4/Pu-4
 IJP(c) JD/JG/AT/WH
 S/0226/64/000/005/0065/0070 37
 B
 ACCESSION NR: AP4046747

AUTHOR: Arabey, B.G. (Moscow); Shtrom, Ye.N. (Moscow); Lapitskiy, Yu.A. (Moscow)

TITLE: Characteristics of the production process of compact parts and mechanical properties of certain rare metal hexaborides

SOURCE: Poroshkovaya metallurgiya, no. 5, 1964, 65-70

TOPIC TAGS: ²⁷lanthanum boride, ²⁷samarium boride, ²⁷europium boride, ²⁷dysprosium boride, hot workability, density, ¹⁸brittleness

ABSTRACT: The authors investigated the laws governing the hot workability of La, Sm, Eu and Dy hexaborides and assessed their mechanical properties. 10 mm diam. and 70x30x20 mm specimens were subjected to hot pressing for 1 to 25 minutes. Compact parts having a density that approximates the calculated value were produced within the 1950 to 2050 C range under a load application of 500 dn/cm². It is noteworthy that the effect of specific pressure on elasticity was found to be negligible and the temperature of initial shrinkage was invariable for all specimens. Appreciable brittleness was noted in all specimens. Bending

Card 1/2

L 32223-65

ACCESSION NR: AP4046747

strength at room temperature was 13 to 18 dn/mm². Orig. art. has: 5 figures and 4 tables

ASSOCIATION: None

SUBMITTED: 25Oct63

ENCL: 00

SUB CODE: MM

NR REF SOV: 005

OTHER: 002

Card2/2

SHTROMBAKH, I. YA.

23846 REMONT POLOZKOV STOPTSILINDROVYKH PLOSKOPECHATNYKH MASHIN.
POLIGR. PROIZVODSTVO, 1949, NO. 4, S. 15-16

SO: LETOPIS' NO. 31, 1949

The fallacy of the German theory regarding the role of tanks in modern warfare. No 3. Tankist, No 12, 1948.

SHTROMENEG, A.

The use of historical examples in the teaching of tactics. No 5.

Tankist, No 12, 1948.

SHTROMBERG, A.Ya.

Cambium and secondary growth in the conducting system of the
common privet leaf. Soob.AN Gruz.SSR 21 no.5:569-574 N '58.
(MIRA 12:5)

1. Tbilisskiy nauchno-issledovatel'skiy khimiko-farmatsevtiche-
skiy institut. Predstavleno akademikom L.I. Dzhaparidze.
(Botany--Anatomy) (Privet)

17(1)

AUTHOR:

Shtremberg, A. Ya.

SOV/20-124-3-59/67

TITLE:

Cambium Activity in the Leaves of Several Dicotyledonous Ligneous Plants (Deyatel'nost' kambiya v list'yakh nekotorykh drevesnykh dvudol'nykh rasteniy)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 3, pp 699-702 (USSR)

ABSTRACT:

The scanty data on the cambium activity in the leaves have induced the author to make observations in this field. The surest method of determining the results of cambium activity is the counting of the procambial cells at earlier development stages. The number of cells is compared with that of the xylem elements in the mature vascular bundles. As regards the cambial cells themselves, their detection postulates a detailed study of the leaves during ontogenesis, in which study the individual development stages of the vascular system have to be continually compared with each other. This time-consuming investigation was carried out by the author with several plants. In *Betula chinensis*, *Fagus orientalis* and *Celtis caucasica*, no cambium could be noticed in the leaf. In some other plants, the rudiments of the cambium are formed in the vascular bundles of the petiole and in the midrib. Its activity, however, remains greatly limited. Thus, e.g., in the vine (*Vitis*

Card 1/3

SOV/20-124-3-59/67

Cambium Activity in the Leaves of Several Dicotyledonous Ligneous Plants

vinifera) the cambium rudiments in the leaf veins are not formed as a coherent layer but in the form of individual cells or cell groups. In the mountain elm (*Ulmus montana*) the cambium activity is more marked in the midrib (Fig 1). In summing up it can be said that the cambium was either totally absent in the leaves of the deciduous plants investigated, or did not show any significant activity in the leaf veins. On the other hand, the leaves of all the evergreen plants investigated are characterized by a considerable cambium activity. Thus in *Ligustrum vulgare* the rudiments of the midrib cambial cells are formed at a very early date. They develop from the peripheral cell layer of the procambium by tangential division. In the leaves of *Laurocerasus officinalis* and *Viburnum rhytidophyllum*, the cambium activity occurs on about the same pattern as in *Ligustrum*. In *Ilex aquifolia* and *Euonymus japonica*, the cambium does not resume its activity in the 2nd year of the plant's life. The observations made by the author have shown that in evergreen plants the cambium activity takes place during the first year and occasionally continues into the 2nd year. On the basis of these few findings, it can not yet be stated that there is a definite relation between the reduction in the cambium activity of the leaf and the shedding of leaves. At any rate, it is obvious

Card 2/3

SOV/20-124-3-59/67

Cambium Activity in the Leaves of Several Dicotyledonous Ligneous Plants

that different forms of cambium activity exist in the plants mentioned in the title, the cambium being in some cases fully differentiated into mechanical elements. In the petiole the cambium activity is more marked than in the midrib. In the midrib its activity is higher in the lower part. The above mentioned origin of the cambium confirms the view point according to which the procambium and the cambium are development stages of one and the same meristematic tissue. Professors A. A. Yatsenko-Khmelevskiy, and Ye. M. Ezau (Davis, California, USA) participated as advisors. There are 3 figures and 7 references, 1 of which is Soviet.

ASSOCIATION: Tbilisskiy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut (Tbilisi Scientific Chemico-Pharmaceutical Research Institute)

PRESENTED: September 24, 1958, by A. L. Kursanov, Academician

SUBMITTED: September 24, 1958

Card 3/3

SHTROMBERG, A.Ya.

Structural characteristics of the water-conducting system in
deciduous and evergreen leaves of woody dicotyledons. Bot. zhur.
46 no.9:1321-1324 S '61. (MIRA 14:9)
(Leaves--Anatomy)

SH'TROMBERG, A. Ya.

Comparative study of elements of the xylem in leaves and stems of dicotyledons. Dokl. AN SSSR 136 no.6:1478-1481 F '61.

(MIRA 14:3)

1. Tbilisskiy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut. Predstavleno akademikom A.L. Kursanovym.

(Plant cells and tissues)

(Dicotyledons)

ANELI, N.A.; SHTROMBERG, A. Ya.

Special characteristics of the structure of the conducting
system in the Georgian genistas. Bot. zhur. 49 no.7:1018-
1022 J1 '64 (MIRA 17:8)

1. Khimiko-farmatsevticheskiy institut, Tbilisi.

SHTROMBERG, B.

PROCESSES AND PROPERTIES INDEX

5

The Improvement of the Physico-Mechanical Properties of Coke.
A. Bruk and B. Shtromberg. (Stal, 1938, No. 11, pp. 1-5). (In Russian). Some Russian work on the selection of coal with suitable properties for coking and the blending of different grades of coal is briefly reviewed. The addition of finely ground coke and of non-caking coal to the charge, as well as the use of blast-furnace gas for heating, have a beneficial effect on the mechanical properties of the coke obtained. These properties are more accurately characterized by the extent and nature of the cracks and by the granulometric composition of the coke than by the drum test.

A.S.U.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

FIGURE NO. 107
1ST AND 2ND LETTERS

FIGURE NO. 107
3RD AND 4TH LETTERS

SHTROMBERG, B.I.

VODNEV, G.G.; SHELKOV, A.K.; DIDENKO, V.Ye.; FILIPPOV, B.S.; TSAREV, M.N.;
 ZASHVARA, V.G.; LITVINENKO, M.S.; MEDVEDEV, K.P.; MOLODTSOV, I.G.;
 LGALOV, K.I.; RUBIN, P.G.; SAPOZHNIKOV, L.M.; TYUTYUNNIKOV, G.N.;
 DMITRIYEV, M.M.; LEYTES, V.A.; LERNER, B.Z.; MEDVEDEV, S.M.; REVYAKIN,
 A.A.; TAYCHER, M.M.; TSOGLIN, M.E.; DVORIN, S.S.; RAK, A.I.; OBUKHOV-
 SKIY, Ya.M.; KOTKIN, A.M.; ARONOV, S.G.; VOLOSHIN, A.I.; VIROZUB, Ye.V.;
 SHVARTS, S.A.; GINSBURG, Ya.Ye.; KOLYANDR, L.Ya.; BELETSKAYA, A.F.;
 KUSHNEREVICH, N.R.; BRODOVICH, A.I.; NOSALEVICH, I.M.; SHTROMBERG, B.I.;
 MIROSHNICHENKO, A.M.; KOPELIOVICH, V.M.; TOPORKOV, V.Ya.; AFONIN, K.B.;
 GOFTMAN, M.V.; SEMENENKO, D.P.; IVANOV, Ye.B.; PEYSAKHZON, I.B.;
 KULAKOV, N.K.; IZRAELIT, E.M.; KVASHA, A.S.; KAPTAN, S.I.; CHERMNYKH,
 M.S.; SHAPIRO, A.I.; KHALABUZAR', G.S.; SEKT, P.Ye.; GABAY, L.I.;
 SMUL'SON, A.S.

Boris Iosifovich Kustov; obituary. Koks i khim. no.2:64 '55.(MLRA 9:3)
 (Kustov, Boris Iosifovich, 1910-1955)

✓ The experimental coking of coals cleaned by the method of centrifugal separation. G. V. Speranskaya, A. S. Taynovnikov, and B. I. Shtromberg. *Koks i Kain*, 1956, No. 4, 8-11. The prospective development of the raw-material base of the Donets Basin offers little hope for the improvement of coal quality so far as it concerns S; av. percentages in oven coal used have risen from 2.28 in 1940 to 2.43 in 1953, while the estd. figure for 1960 is 2.44. Results of work described show that in lab. and pilot-plant studies with a system developed by the Acad. of Sci. of the USSR by using centrifugal force on coals suspended in solns. of CaCl_2 , the S of Donets Basin coals may be reduced to 0.5% and ash to 4-5%; results that compare favorably with those obtained with the mech. jig. Likewise the firmness and other qualities of cokes from coals cleaned by the two methods are practically equal. Analytical results of cokes produced from mixts. of various combinations of the oven charges are tabulated. H. J. Olin

3

SHTRONBERG, B. I.

68-11-2/11

AUTHORS: Miroshnichenko, A.M., Candidate of Technical Sciences and
Shtromberg, B.I., Candidate of Technical Sciences.

TITLE: Resources of Coking Coals for the Southern Region
(Ugol'naya baza koksovaniya yuga)

PERIODICAL: Koks i Khimiya, 1957, No.11, pp. 10 - 14 (USSR)

ABSTRACT: The development of resources of coking coals for the southern works is outlined. The distribution of coals according to their technological grades in coal reserves and in coal output during 1940, 1951, 1955, 1956 and in planned output for 1960 is given in Table 1 and the distribution of coal reserves of the Donets basin according to their sulphur content in Table 2. Changes in the composition of coal blends from the Donets coals during 1935-1956 and typical blends proposed by UKhIN for the next five years are shown in Tables 3 and 4, respectively. There are 4 tables.

ASSOCIATION: UKhIN

AVAILABLE: Library of Congress
Card 1/1

5(1)

PHASE I BOOK EXPLOITATION

SOV/2127

Koksokhimicheskoye proizvodstvo; sbornik statey (By-Product Coking Industry; Collection of Articles) Moscow, Metallurgizdat, 1959. 240 p. 2,500 copies printed.

Ed.; B. S. Filippov; Ed. of Publishing House: A. A. Revyakin; Tech. Ed.: P. G. Isant'yeva

PURPOSE: The book is intended for engineers and technicians in the by-product coking industry and in scientific research institutes. The book may also be used by students in secondary and higher technical schools.

COVERAGE: The articles in this collection on the by-product coking industry appeared originally either in the periodical Koks i khimiya (Coke and Chemistry) or in other publications during 1955-1958. The book discusses the development of raw-material reserves for coking, technology of the manufacture of coke, quality of coke and further enlargement of the number of chemical coking products obtained. Some articles are devoted to a new procedure for preparing and beneficiating coals, new methods for coking, and to the mechanization and automation of industrial processes. References accompany individual articles.

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SOV/68-59-5-3/25

AUTHORS: Miroshnichenko, A.M., and Shtromberg, B.I.

TITLE: An Investigation of the Donets Coals using Methods Adopted in the International Classification of Coals (Issledovaniye donetskikh ugley metodami, prinyatymi v mezhdunarodnoy klassifikatsii)

PERIODICAL: Koks i khimiya, 1959, Nr 5, pp 5-10 (USSR)

ABSTRACT: An investigation of the typical coals from the Donets Basin using methods adopted for the international classification of coals and the comparison of the results obtained with indices obtained using the plasto-metric method of L.M. Sapozhnikov, is described. A comparison of the Roga number and thickness of the plastic layer for the typical Donets coal is shown in Table 1 and Fig 1; the relationship between the classification parameters of the Donets coals according to GOST 8180-56 and the parameters of the international classification in Table 2; the relationship between the maximum expansion and the thickness of the plastic layer in Fig 2; the distribution of Donets coals according to types of the international classification in Table 3; and the distribution of Donets coals on

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SOV/68-59-5-3/25

An Investigation of the Donets Coals using Methods Adopted in the International Classification of Coals

the diagram: thickness of plastic layer - volatile matter content in Fig 3. On the basis of the results obtained the following conclusions are drawn. Swelling index, due to the subjectiveness of its evaluation is not recommended for characterising the caking ability of the Donets coals. The Roga method can be utilised mainly as an additional parameter for differentiating Donets lean non-caking coals from lean weakly-caking coals. The method does not characterise technological properties of all well caking coals. The division of coals into 4 groups, adopted in the international classification, is insufficient for characterising the caking ability of a large number of coals. In respect of Donets coals, 1-2 additional groups are necessary. The deficiency of the dilatometric method consists in that it is insufficient for the division into subgroups of coals which are evaluated by this method not by the maximum expansion but only by the maximum contraction of specimens. Subjective evaluation of the results obtained by the Grey King method presents its main

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SOV/68-59-5-3/25

An Investigation of the Donets Coals using Methods Adopted in the International Classification of Coals

deficiency. The coals and anthracites investigated can be divided according to the international classification into 23 types (out of 61 types in the classification) and 10 groups (out of 11). The plastometric index - thickness of the plastic layer can be recommended as a parameter of the coking ability of coals for the international classification.

Card 3/3 There are 3 tables and 3 figures.

ASSOCIATION: UKhIN

MIROSHNICHENKO, A.M., SHTROMBERG, B.I., GARBAR, A.K., MOISEYEVA, Kh. M.,
STRUYEV, M.I., SAVKOVA, V.P., CHUGUNOVA, A. Ye.

Technological properties of lower carboniferous coals in the
Western Donets Basin. Koks i khim. no.3:3-8 '60. (MIRA 13:6)

1. Trest "Ukruglegeologiya" (for Struyev, Savkova, Chugunova).
 2. Ukrainskiy uglekhimicheskiy institut (for Miroshnichenko,
Shtromberg, Garbar, Moiseyeva).
- (Donets Basin--Coal)

MIROSHNICHENKO, A.M.; SHTROMBERG, B.I.; DAVIDOVICH, A.Z.; KAPLUN, A.I.;
MATSIYEVICH, L.F.; POTASHNIKOVA, M.M.; KUL'MAN, R.K.;
GERLANETS, L.M.

Differentiation of leaned out weakly caking coals and lean
noncaking coals of the Donets Basin. Koks i khim. no.5:9-10
'60. (MIRA 13:7)

1. Ukrainskiy uglekhimicheskiy institut (for Miroshnichenko,
Shtromberg, Davidovich, Kaplun, Matsiyevich). 2. Stalinskiy
koksokhimicheskiy zavod (for Potashnikova, Kul'man, Gerlanets).
(Coal--Classification)

SHTROMBERG, B.I.; MIROSHNICHENKO, A.M.; MOYSEYEVA, Kh.M.; KRIVOKON', Yu.G.;
BRUK, A.S.; VOLKOVA, Z.A.; GEYD, G.P.; OBUKHOVSKIY, Ya.M.

Investigation of the coals of the Lvov-Volyn' Basin. Koks i khim.
no.1:12-17 '61. (MIRA 14:1)

1. Ukrainskiy uglekhimicheskiy institut (for Shtromberg, Mirosh-
nichenko, Moyseyeva, Krivokon'). 2. Dnepropetrovskiy metallur-
gicheskiy institut (for Bruk, Volkova, Geyd, Obukhovskiy).
(Lvov-Volyn' Basin--Coal)

SHTROMBERG, B.I.; DVUZHIL'NAYA, N.M.

Typfication of Donets coal and anthracite mined in 958 in accordance with the international coal classification. Koks i khim. no.1:12-14 '62. (MIRA 15:2)

1. Ukrainskiy uglekhimicheskiy institut (for Shtromberg).
 2. Donetskii nauchno-issledovatel'skiy ugol'nyy institut (for Dvuzhil'naya).
- (Donets Basin—Coal—Classification)

MIROSHNICHENKO, A.M.; SHTROMBERG, B.I.; KRIVOKON', Yu.G.; SHINKAREVA, T.V.;
DRUY, G.N.; DVUZHIL'NAYA, N.M.; GUTMAN, L.M.; KUL'MAN, R.K.;
KOVALEVSKAYA, H.M.

Coking of a charge containing 40% gas coals and blast-furnace
smelting with coke obtained by this method. Koks i khim. no.2:20-24
'63. (MIRA 16:2)

1. Ukraïnskiy uglekhimicheskiy institut (for Miroshnichenko, Shtromberg,
Krivokon', Shinkareva, Druy). 2. Donetskii nauchno-issledovatel'skiy
ugol'nyy institut (for Dvuzhil'naya). 3. Donetskii koksokhimicheskiy
zavod (for Gutman, Kul'man, Kovalevskaya).
(Coke) (Metallurgical furnaces)

MIROSHNICHENKO, A.M., kand. tekhn. nauk; PANCHENKO, S.I., doktor tekhn. nauk; SHTROMBERG, B.I., kand. tekhn. nauk; FRISHBERG, V.D., kand. tekhn. nauk; BAYDALINOV, P.A., inzh.; GRYAZNOV, N.S., doktor tekhn. nauk; ZASHKVARA, V.G., doktor tekhn. nauk; LAZOVSKIY, I.M., kand. tekhn. nauk; MARINICHEV, B.T., inzh.; FEL'DBRIN, M.G., kand. tekhn. nauk; BAKUN, N.A., inzh.; BARATS, B.M., inzh.; VOZNYIY, G.F., kand. tekhn. nauk; MIKHAL'CHUK, A.M., inzh.; TOPORKOV, V.Ya., kand. tekhn. nauk; FLORINSKIY, N.V., inzh.; KHAYET, A.N., inzh.; SHELKOV, A.K., inzh., red.; ARONOV, S.G., doktor tekhn.nauk, red.; PREOBRAZHENSKIY, P.I., inzh., red.

[Manual for coke chemists in six volumes] Spravochnik koksokhimi-
mika v shesti tomakh. Moskva, Izd-vo "Metallurgiya." Vol.1.
[Source of raw materials and preparation of coal for coking]
Syr'evaia baza i podgotovka uglei k koksovaniu. 1964. 490 p.
(MIRA 17:5)

S. H. Shtromberg, M. S.

Hygienic evaluation of working conditions and recuperative measures in production of urea-formaldehyde resins. M. S. Shtromberg (Sanit. Epidemiol. Sta., Moscow). *Gigiena i Sanit.* 21, No. 7, 45-7(1950).—The conditions under which workers in urea-formaldehyde plants come in contact with toxic materials are described in detail at various stages of production of the resins. Av. values of toxicants in various sites in a typical plant are listed for CH_2O and BuOH . Appropriate ventilation and protective clothing measures are discussed. G. M. K.

SHTROMBERG, ^{R.}
USSR/Electronics - Television

Card 1/1

Authors : Likhachev, M. and ^{R.}Shtromberg, P.

Title : The large Television Screen

Periodical : Radio. 5, 36 - 38, May 1954

Abstract : This article gives a general description of a television receiver set used in the Moscow movie house "Ermitazh" (Hermitage). The picture received by the television set is projected on a screen of 3x4 meters. The article discusses the technical problems involved, namely: clarity of image, light and acoustics. It also discusses the improvements intended to be introduced into the television sets used for large audiences. Four illustrations giving a general view of the set and some of its parts are shown.

Institution :

Submitted :

Shtromberg, R.

USSR/ Electronics - Television

Card 1/1 Pub. 89 - 24/27

Authors : Shtromberg, R.

Title : ~~Television and its future~~
Television and its future

Periodical : Radio 1. 56-58, Jan 1955

Abstract : The author discusses the difficulty of getting television reception to all parts of the Soviet Union due to the fact that the separate stations have relatively short range, but claims that stations are being constructed continually thus spreading television into regions at present not reached by it. Color television is also being developed and stereoscopic television is being studied. Some analysis is made of the possibility of the application of television in industry. Illustrations.

Institution :

Submitted :

SHTROMBERG, R.

Television in the national economy. Radio no.3:45-47 Mr '55.
(Television) (MLBA 8:4)

SHTROMBERG, R.

107-57-5-50/63

AUTHOR: Likhachev, M., Shtromberg, R.

TITLE: "Moskva" Projection-Type TV Set (Proyektsionnyy televizor "Moskva")

PERIODICAL: Radio, 1957, Nr 5, p 45 (USSR)

ABSTRACT: One of Moscow radio plants has started a batch production of "Moskva" projection-type tv sets (see second page of the back cover). The new tv set is intended for various public places like schools, hospitals, clubs, etc. Its 0.9x1.2 m concave-cylindrical aluminum screen has a brightness of 1.5-2 millistilbs and is normally placed at 2.5 m from the kinescope; its weight is 25 kg (with its housing). The 5-channel tv set proper has a sensitivity of 100 μ v or better, definition 500-550 lines, a-f response 40-12,000 cps, sound amplifier power 4 w. (It can be used also as a 64-73 mc f-m radio receiver). Five dynamic loudspeakers are mounted on all four sides of the cabinet: two 5-watt 5GD10 on the front wall, one 1-watt 1GD9 on each side wall, and one 5-watt 5GD14 on the rear (that is, facing the large screen) wall of the cabinet. The projection-type 6LK1B kinescope has a 65-mm diameter screen or a format of 36x48 mm, light-spot diameter 0.06-0.07 mm, high voltage 25 kv, mean beam current 100-150 μ a, screen brightness 1-1.5 stilbs, rated life 500 hrs at 150 μ a beam current (actual life has been over 2,000 hrs in most cases). Size of the cabinet 560x460x820 mm. Other data given.

There are one figure in the article and one on the second page of the back cover.

AVAILABLE: Library of Congress

Card 1/1

SHTROMBERG, R.M.

Mixtures for iron casting without addition of coal dust. Lit.
proizv. no.3:27 Mr '58. (MIRA 11:4)
(Iron founding)

25(1,7)

SOV/117-59-4-27/36

AUTHOR: Shtromberg, R.M., Engineer

TITLE: Light Pneumatic Rammers.

PERIODICAL: Mashinostroitel', 1959, Nr 4, p 38 (USSR)

ABSTRACT: The subject light-weight rammers (Figure 1) devised and made at the Odesskiy zavod frezernykh stankov (Odessa Milling Machine Plant) are designed for ramming small earth molds and cores on manual molding boards. The rammer weighs 5.8 kg, is 470 mm long and is suspended on a special spring bracket (Figure 2) to eliminate holding it during operation. Rubber tips (Figure 3) protect the wood patterns and core boxes from damage in ramming. It is mentioned that the pneumatic "TR-1" rammers made by the zavod "Pnevmatik" (Plant "Pneumatic") are suitable only for large mold and core boxes. There are 3 diagrams.

Card 1/1

TERENT'YEV, V.; SHTROMBERG, Ya.

Laying lightweight walls. Stroitel' no.7:19 J1 '58. (MIRA 11:9)
(Bricklaying)

1. История

2. Литература

Свестеннива ие Kokono dital'nykh Tsekhov. Tekstil. Prom-st', 1949, No. 8, 3. 24-30

30: LITOPIS NO 34

13. Fishch vaya 1 Vkusovaya Promyshlennost'

SHTROMBERG, Yakov Abramovich, kandidat tekhnicheskikh nauk; ZHILO, M.Ye.,
redaktor; AVRUTSKAYA, R.F., redaktor izdatel'stva; MIKHAYLOVA, V.V.,
tekhnicheskiiy redaktor

[Dust removal ventilation in rolling mills] Obespylivaiushchaya
ventiliatsiya prokatnykh stanov. Moskva, Gos.nauchno-tekhn.
izd-vo lit-ry po cherno i tsvetnoi metallurgii, 1957. 71 p.
(MLRA 10:9)

(Factories--Heating and ventilation)

AUTHORS. Shtromberg, Ya. A. and Babalov, A.F., (Candidates of technical sciences). 130-3-14/22

TITLE: The shielding and ventilation of control posts. (Ekranizatsiya i ventilyatsiya postov upravleniya).

PERIODICAL: "Metallurg" (Metallurgist), 1957, No.3, pp.27-28. (U.S.S.R.)

ABSTRACT: Details are given of arrangements made to improve working conditions in a control post whose wall temperatures were previously 53-54 and 62 C. Aluminium foil was provided for screening radiation, the windows were made three-layer, with 15-20 mm air gaps and air, cooled by evaporation of water, was used to ventilate the compartment. In the winter the air stream is heated. The Ministry of Ferrous Metallurgy of the U.S.S.R. has proposed that 18 of the largest metallurgical works should adopt this system for control points in rolling mills.

Card 1/1

There are two diagrams.

ASSOCIATION: All-Union Research Institute for labour protection VTsSPS imeni S.M. Kirova (Vsesoyuznyy nauchno-issledovatel'skiy institut okhrany truda VTsSPS im. S.M. Kirova).

AVAILABLE:

PETROV, A.K.; SPERANSKIY, V.G.; KHIZHNICHENKO, A.M.; SHILYAYEV, B.A.;
DANILOV, A.K.; BORODULIN, G.M.; ZAMOTAYEV, S.P.; MARKARYANTS, A.A.;
SOLNTSEV, P.I.; SMIRNOV, Yu.D.; VAYNBERG, G.S.; OKOROKOV, N.V.;
KOLOSOV, M.I.; SEL'KIN, G.S.; MEDOVAR, B.I.; LATASH, Yu.B.;
YEFROYMOVICH, Yu.Ye.; VINOGRADOV, V.M.; SVEDE-SHVETS, N.N.;
SKOROKHOD, S.D.; KATSEVICH, L.S.; SHTROMBERG, Ya.A.; MIKHAYLOV,
O.A.; PATON, B.Ye.

Reports (brief annotations). Biul. TSNIICM no.18/19:67-68 '57.

(MIRA 11:4)

1. Zavod Dneprospetsstal' (for Speranskiy, Borodulin). 2. Chelyabin-
skiy metallurgicheskiy zavod (for Khizhnichenko). 3. Uralmashzavod
(for Zamotayev). 4. Trest "Elektropech'" (for Vaynberg). 5. Moskov-
skiy institut stali (for Okorokov). 6. TSentral'nyy nauchno-issledo-
vatel'skiy institut chernoy metallurgii (for Sel'kin, Svede-Shvets).
7. Institut elektrosvarki AN USSR (for Paton, Medovar, Latash).
8. TSentral'naya laboratoriya avtomatiki (for Yefroymovich,
Vinogradov). 9. Gissogneupor (for Skorokhod). 10. Trest "Elektropech'"
(for Katsevich). 11. Tbilisskiy nauchno-issledovatel'skiy institut
okhrany truda Vsesoyuznogo tsentral'nogo soveta profsoyuzov (for
Shtromberg).

(Steel--Metallurgy)

137-58-6-11788

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 84 (USSR)

AUTHOR: Shtromberg, Ya.A.

TITLE: The Cleaning of Electric Furnace Gases (Ochistka gazov elektrostaleplavil'nykh pechey)

PERIODICAL: Tr. Nauchno-tekhn. o-va chernoy metallurgii, 1957, Vol 18, pp 673-678

ABSTRACT: A device for cleaning the gases (G) of electric steel-foundry furnaces is described. When G are removed by natural ascent through a roof skylight, it is recommended that the skylight be of stepped construction to eliminate excess heat, and that it be of large cross-section above furnaces and smaller between them, and that cleaning of the G be by an axial blower constituting a filter as well, having additional blades welded at right angles to the center of its major blades, the whole impeller being housed in a shell, the lower portion of which is perforated and wetted with water calculated on the basis of 0.1-0.15 liter per m³ air. The dust is removed from the blower as slime through a funnel in its lower portion. One furnace may have from 1 to 6 blowers. Foam-type filters are recommended

Card 1/2

137-58-6-11708

The Cleaning of Electric Furnace Gases

for the cleaning of G to be withdrawn locally. In these, the G enters beneath a 5-mm-mesh screen, passes through these openings and a layer of water delivered atop the screen in quantity of $0.15-0.3 \text{ l/m}^3 \text{ G}$, forming a foam 20-600 mm high, and then passes through a labyrinth filling to trap the splash. Dust catchers of this design are 82-92% efficient. G may also be cleaned by means of filter blowers consisting of an ordinary centrifugal blower and two shells - an inner shell with 5-8-mm holes and a solid lower shell with a funnel for collecting and removing the pulp. The cleansing coefficient of these blowers is 90-99%; they consume 300 g water per m^3 of air. A.Sh.

1. Waste gases--Purification 2. Electric furnaces--Operation 3. Blowers--Design
4. Blowers--Applications 5. Filters--Applications

Card 2/2

SHTRONBERG, Ya. A.

Calculating ventilation in high-temperature shops with nonuniform
thermal conditions. Vod. 1 san. tekhn. no.6:5-7 Je '58. (MIRA 11:5)
(Ventilation)

SHTROMBERG, Ya.A., kand. tekhn. nauk

Protection of hot-shop workers from excessive heat. Bezop.
truda v prom. 3 no.2:14-15 F '59. (MIRA 12:2)

1. Tbilisskiy institut okhrany truda Vsesoyuznogo tsentral'nogo
soveta profsoyuzov.
(Metallurgical plants--Safety measures)

SHTROMBERG, Ya.A. (Tbilisi)

Aeration calculations for hot shops. Vol.1 san.tekh. no.2:
25-27 F '60. (MIRA 13:5)

(Factories--Ventilation)

SHTROMBERG, Ya.A. (Tbilisi)

Air conditioning in tea factories. Vod. i san. tekhn. no.10:8-13 0
'60. (MIRA 13:11)

(Factories--Air conditioning)

SHTROMBERG, Ya.A.

Ventilation of machine rooms in metallurgical plants, Vod. i san.
tekh. no. 12:14-15 D '60. (MIRA 14:4)
(Metallurgical plants--Heating and ventilation)

SHTROMBERG, Ya.A., kand.tekhn.nauk

Improving labor conditions in metallurgical and hot metalworking plants. Stal' 20 no. 12:1153-1155 D '60. (MIRA 13:12)

1. Tbilisskiy institut okhrany truda Vsesoyuznogo tsentral'nogo soveta profsoyuzov.

(Metallurgical plants--Ventilation)

(Metalworkers--Diseases and hygiene)

KOCHINASHVILI, A.V., kand.tekhn.nauk; SHTROMBERG, Ya.A., kand.tekhn.nauk

Purification of exhaust gases from metallurgical plants by means
of foam filters. Stal' 23 no.9:859-861 S '63. (MIRA 16:10)

SHTROMBERG, Ya.A.; KALINUSHKIN, M.P., prof., retsenzent; DZHALAGANIYA, K.I.,
inzh., retsenzent; YERMOKHINA, N.V., red.

[Ventilation and the air conditioning in the tea
processing industry] Ventilatsiia i konditsionirovanie
vozdukh v chaeobrabatyvaiushchei promyshlennosti. Mo-
skva, Izd-vo "Pishchevaia promyshlennost'," 1964. 217 p.
(MIRA 17:6)

SHTROMBERG, Ya.A., kand. tekhn. nauk (Tbilisi)

Effect of the layout of the equipment on the effectiveness of the
aeration of forge shops. Vod. 1 san. tekhn. no.1:25-27 Ja '66.
(MIRA 19:1)

SHTROMBERGER, L. V.

✓ Ultrasonic effects on *Schizosaccharomyces acidodurans*. M. P. Gnutenko, L. V. Shtromberger, and L. G. Gumilevskaya (State Univ., Saratov). *Mikrobiologiya* 25, 886-8(1958).—Irradiation of *S. acidodurans* 0.5 min. at 600 kc./sec. killed 45.5% of the cells, and weakened the deacidifying activity of surviving cells, but caused little loss in fermentation capacity. In 0.5 min. at 1 Mc./sec. only 1.32% of the cells survived, and were seriously weakened in all metabolic activities. In 4 min. at 2 Mc./sec. 23% of the cells survived; in 0.5 min., only 0.002%, and these had impaired activity. Julian F. Smith